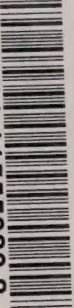


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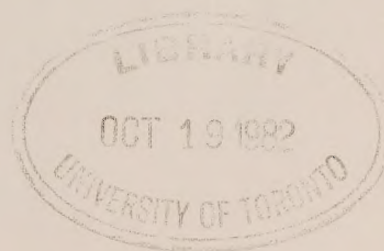
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GUIDELINES

for the preparation of an Environmental
impact statement

Quebec Port Expansion Project



January 1979

Canada



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INTRODUCTION

The Environmental Assessment Panel for the Quebec Port Expansion project has developed these guidelines as an aid to those responsible for preparing the environmental impact statement of this project.

The Panel includes representatives from the federal and provincial governments, the university community and private industry.

The guidelines were prepared for the benefit of the proponent of the project, (1). Their purpose is to define the scope, direction and general presentation of the environmental impact statement. They also underline the specific problems which must be taken into account in assessing the possible effects of this type of project.

The overall object of the impact statement is to ensure that the project proponent, responsible government agencies, review agencies and the interested public acquire a uniform understanding of the consequences of the project and of its environmental impacts. More specifically, the environmental impact statement must:

- 1) provide a description of all aspects and of implementation phases of the project;

(1) National Harbours Board, Quebec Harbour

- 2) outline the nature, extent and scope of a) the project's foreseeable environmental impacts and alternative solutions; b) proposed variants;
- 3) indicate measures to accentuate positive or beneficial impacts and reduce harmful or degrading impacts.

In view of the possible extent of the impacts a project of this size may engender, the guidelines specify that the possible social effects of the project on neighbouring communities and any changes to be imposed upon such communities must be included in the statement, in addition to the effects of the project on the natural environment.

In light of this extended concept of the environment, the guidelines are intended to orient the environmental impact statement towards the identification of possible changes in resource use, functions and potentials. In order to predict the direction and magnitude of these changes, the interested parties will have to collect documentation on the human and natural resources of the affected area and submit the results of their research.

The proponent, in his environmental impact statement, shall answer all questions specifically contained in the guidelines.

This document contains a list of the subjects which must be examined in the environmental impact statement.

1. IMPACT STATEMENT SUMMARY

The object of the impact statement summary is to provide a concise description of the project and its environmental impacts. It should be immediately understandable to the public and suitable for direct use by the information media. To this end, the summary shall be published separately, while remaining an integral part of the statement.

The summary will include aspects related to resource inventories, an account of the probable impacts on the natural and social environment, a statement of planned mitigation measures, and an account of non-mitigated residual impacts and their importance with respect to present and future resources; the summary must also list any significant omissions in the statement resulting from a lack of pertinent data.

2. PROBLEMS

a) Project description

The proponent shall give a concise technical description of the project, containing sufficient information to enable an environmental impact assessment of the implementation of the project and related installations. The proponent shall supply the writings, graphics, maps and photographs showing the exact location of the project.

The project to which these guidelines apply includes the following elements which should be described in the Environmental Impact Statement:

- 1) installations relating to harbour activities proper (wharf lines, handling equipment, storage and service buildings);
- 2) industrial installations (type of industry, physical characteristics of buildings and equipment);
- 3) combined installations (light industry, storage, office buildings and other services);
- 4) road and railway infrastructures.

The proponent shall describe the preliminary work required as well as the major phases of construction and operation, distinguishing between pre-construction, construction and rehabilitation of disturbed zones. He shall prepare a timetable of events, and an analysis of development alternatives shall be included.

The parameters used for calculating the potential of the site for harbour and industrial development shall also be included.

b) Project necessity

The proponent must explain in a concise and complete manner the necessity of its project on the Beauport wetlands.

The proponent must justify its implementation and, in this context, provide background information on the past and present harbour needs of the Québec region as well as forecasts of their future distribution in time and space. The proponent will be required to explain the relationship between his project and the development objectives favoured by the various levels of government. He must also describe other possible solutions and explain why this site was selected over all others. The real or apparent advantages and disadvantages of each alternative shall be described. The proponent must also list the consequences of postponing the project and of cancelling it.

c) Related activities

All on-going or planned projects affected or generated by the port development must be identified in terms of their significant positive or negative effects on the port development and its environment.

3. AREA OF STUDY AND METHODS

The environmental impact statement shall comprise a description of the area affected by the project, an account of the methodology employed in the study and any other pertinent information that might help to determine the extent, duration and location of works, and to clarify the relationships between the components.

3.1 Area of Study

A global description of the environments covered by the study, in which the physical limits of the foreseeably affected area are defined at the terrestrial, aquatic and atmospheric levels, shall be submitted to the Panel.

3.2 Methods

The statement shall comprise a brief description of the study methods used in the field, in laboratories and in offices. In order to provide information on the scope and chronology of the work accomplished and to illustrate the organization of relations between agencies participating in the preparation of the EIS, detailed descriptions of the studies conducted to collect information shall be appended to the statement along with listings of pertinent data sources, such as:

- a) studies and reports in environment- and resource-related fields prior to the submission of the project;
- b) specific or particular studies to collect data and information for use in preparing the statement.

3.3 Identification and responsibility of proponent

The identity of the proponent shall be clearly established. He must be held accountable for the statements and judgements contained in the

environmental impact statement. Should this statement be prepared in whole or in part by persons or agencies other than the proponent (university, consulting firms), their terms of reference shall be appended to the statement.

3.4 Study teams

The members, hierarchical structures and responsibilities of management and research teams shall be clearly identified.

4. INVENTORY OF RESOURCES

The description of the natural and social environment in the Québec region which may be affected by the port development will be guided by historical and heritage perspectives. The importance given to the description of each element will depend on the weight and extent of the impacts it foreseeably determines. Only the essential necessary data for the evaluation of the environmental impacts will have to be researched.

A) Biophysical Environment

a) Physical aspects

The proponent shall study the anticipated effects of the project with respect to the basic components of each of the following fields: climatology, geomorphology, hydrography, hydrology, fluvial hydraulics.

He shall study the present situation and objectively determine the changes caused by the project at each stage of the proposed implementation schedule. He shall examine the geological and geomorphological characteristics of the site in order to determine the load capacity of the soil and the risk of earthquake. He shall analyze the hydrographic, hydrological and fluvigraphic components of the St. Lawrence at Québec and forecast the effects of the development on channel depth, ice movement, tides, currents, waves, and the dynamics of the sediments quality and quantity. He shall study the impacts of the project with regard to climatic elements and determine the constraints imposed by weather conditions to the operating safety of an industrial-port complex: wind conditions, fog and ship movement, temperature inversion and dissemination of industrial pollutants, etc. Finally, he shall inventory the chemical and bacteriological composition of the waters and prepare an estimate of the foreseeable changes attributable to the project. This operation shall constitute a preliminary stage in the assessment, for instance, of aquatic wildlife sensitivity to the proposed development. The purifying properties of the shore and aquatic communities in this area of the St-Laurence River shall also be studied.

b) Biological aspects

The proponent shall study plant communities by species and association, in terms of their relative abundance, scarcity, fragility and their importance as foods and habitats. Terrestrial, intertidal and aquatic flora shall be included in the study.

He shall study the marine invertebrates, fish, amphibians, reptiles, birds and mammals inhabiting the proposed development area and collect data on the species typical of this area, considering the faunic diversity indices.

He shall describe the life cycles and, according to each case, the breeding grounds, nursing grounds, rest areas, hibernation grounds and so forth of important species, i.e. those which are scarce and endangered or which have a significant commercial, scientific or sporting value.

B) Human Environment

The proponent shall study the distribution and characteristics of the potentially affected population: lifestyles, communities, jobs, public and private establishments. He shall provide information on present land use and submit a map at the appropriate scale. He shall indicate the property status (public, private or special status) of adjacent lands.

He shall evaluate the consequences of the port expansion on the accessibility to the River and on modifications to the panorama constituted by the narrowing of the river, the Cap Diamant, the Beauport wetlands and the Ile d'Orleans.

He shall describe the overall cultural, social and economic situation of the sector in general and determine the effect of port development

on community life, and on touristic and recreational aspects. He shall state the information programs, public consultation programs and opinion polls concerning the project.

5. CURRENT USE OF NATURAL RESOURCES

The proponent shall describe all the current or potential uses of the site and area resources. He should also examine the short and long term uses accentuating in each case the economic or social impact, current or potential.

6. PROJECT IMPACTS ON THE ENVIRONMENT AND ON THE AVAILABILITY OF RESOURCES

Forms of activity and operating methods shall be compared among themselves in order to identify the development options with the least disturbing or most acceptable global environmental impact. To do so, a distinction shall be established between short- and long-term effects, direct and indirect impacts and between local and regional impacts.

The predictable impacts on water quality and quantity, on underground water, on aquatic flora, on sediments quality, on aquatic fauna, on air quality, on terrestrial fauna and flora, on birds and on human environment shall be taken into account.

7. MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS

The proponent shall suggest mitigation or improvement measures and indicate how they might reduce or eliminate negative impacts: changes in the location and design of facilities, adjustments in the schedule of related activities, restoring of sites otherwise certain to deteriorate, education of construction and operation staff on environmental protection. He shall also attempt to determine how the effects of naturally beneficial impacts could be increased.

Thus, among other environmental protection measures, the following shall be taken into consideration: the possibility of changing construction and operation specifications and processes, the sensitization of management personnel to the advantages of environmental protection, the strict application of regulations governing activities subject to control and supervision, not forgetting the implementation of performance improvement processes for corrective or compensatory activities.

8. DESCRIPTION OF UNAVOIDABLE IMPACTS

The inevitable effects must be clearly identified. Their probable duration, extent and seriousness must be unreservedly described. Direct and indirect positive or adverse effects on the physical, biological and human environment must be identified for each phase (implementation, operation) and a global assessment of the various development options must be provided.

The statement submitted by the proponent shall contain a detailed description of the environmental impacts which may persist despite the precautions taken to counter the noxious or harmful effects of construction work and operating activities on the environment; the nature, scope, duration and importance of these impacts shall be specified.

9. DESCRIPTION OF IRREVERSIBLE IMPACTS ON RESOURCES

The proponent shall describe quantitatively and qualitatively the irreversible impacts of its activities on the resources.

10. DESCRIPTION OF THE DEVELOPMENT OPTIONS

An elaborate analysis of the management options, centered on the minimization of environmental nuisances, shall be an essential part of the study, since it will enable the optimization of the development project in light of an overall physical, economic and human resources conservation policy. This analysis should normally be based on an integrated cost-benefit analysis of each alternative. The previously mentioned term "development option" must be taken to include, in an overall sense, planned monitoring measures, safety equipment to be installed, operating rules and residual environmental constraints.

11. CONTROL

The proponent shall describe the range of measures designed to control the effects of the project, as a result of a detailed analysis of environment related concerns.

12. BIBLIOGRAPHY

The proponent shall provide a list of all the documents which were used to prepare the environmental impact statement. Each reference should be complete in order that documents referred to can be located.

13. APPENDICES

The relevant documentation (plans and specifications, etc.) should be appended to permit direct reference to it.

